



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,892	12/08/2003	Jun-Won Kang	1568.1080	9667
49455 7590 01/24/2008 STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005			EXAMINER LAIOS, MARIA J	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 01/24/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/728,892

Applicant(s)

KANG ET AL.

Examiner

Maria J. Laios

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7 November 2007 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-8, 17, 19, and 21-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites:

An electrode unit comprising:
a first electrode plate having a first electrode uncoated portion on at least one side of a first electrode collector coated with at least a first electrode active material;
a second electrode plate having a second electrode uncoated portion on at least one side of a second electrode collector coated with at least a second electrode active material; and
a separator interposed between the first electrode plate and the second electrode plate, wherein a folded portion is provided on at least one edge of at least one of the first electrode plate and the second electrode plate so as to have uncoated portions of the electrode plate face each other, and the folded portion is formed to be the same width as the at least one of the first electrode plate and the second electrode plate.

It is unclear from claim 1 whether the folded portion provided on at least one edge of at least one of the first electrode plate and the second electrode plate is provided at the uncoated portion

mentioned in line 2 of the claim or provided at another uncoated portion of the electrode. It is recommended that applicant rewrite the claim as:

An electrode unit comprising:

a first electrode plate having a first electrode uncoated portion on at least one side of a first electrode collector coated with at least a first electrode active material;
a second electrode plate having a second electrode uncoated portion on at least one side of a second electrode collector coated with at least a second electrode active material; and
a separator interposed between the first electrode plate and the second electrode plate, wherein a folded portion is provided on at least one edge of at least one of the first electrode plate and the second electrode plate by folding said uncoated portion onto itself so as to have uncoated portions of the electrode plate face each other, and the folded portion is formed to be the same width as the at least one of the first electrode plate and the second electrode plate.

4. Claim 6, 7, 13 and 14 recites the limitation "the first electrode tab" in line 3 of the claim.

There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3-5, 9, 11, 12 and 17-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Shibamoto et al. (WO 0278113, US 20040096733 is used as an English equivalent).

With respect to claims 1, 3, 4, 9 and 11, Shibamoto et al. discloses an electrode unit comprising a first electrode plate (22a, anode current collector) having an uncoated portion on (31, a single

sided exposed portion or 36- double sided exposed portion) with an electrode active material (22b); a second electrode plate (21a, cathode current collector) having an uncoated portion (30- single sided exposed portion, 37-double sided exposed portion) with an active material (21b); a separator (23) interposed between the anode and cathode; wherein a folded portion is provided on one edge so as to have uncoated portion of the electrode plate face each other (as applied to claims 3 and 11, see figure 28 below) and the folded portion is formed to be the same width as the electrode plate (paragraph 12, see figure 28 below which is the innermost circumferential portion of a spirally wound electrode thus the folded portion is at the winding start of the electrode plate, as applied to claim 4).

Shibamoto further discloses a case accommodating the electrode unit to be sealed and having a terminal portion electrically connected to the electrode unit (11, battery can, Figure 1, as applied to claim 9)

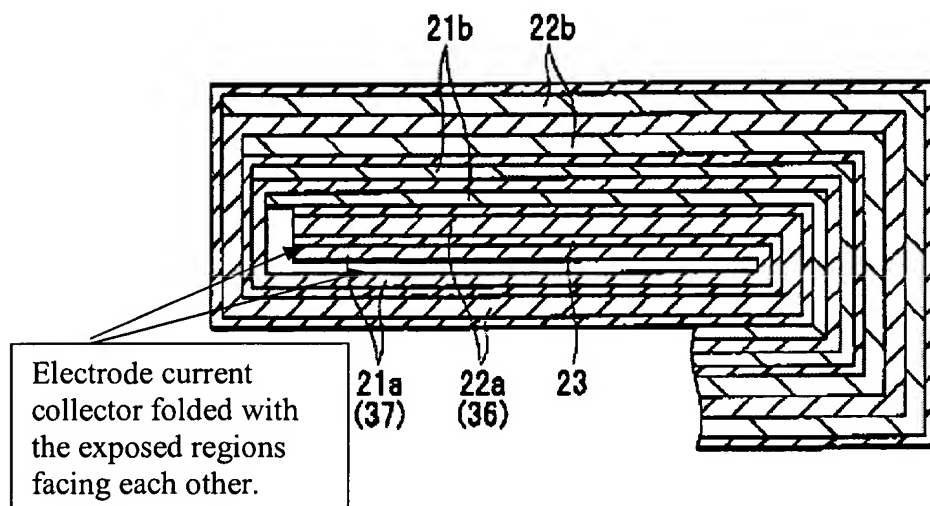


FIG. 28

With respect to claims 5 and 12, Shibamoto further discloses the current collector (21a) is folded in upon itself such that any burrs that occurred from the manufacturing process will come in contact with the same material (Figure 28).

With respect to claims 17 and 18, Shibamoto discloses the anode current collector comprising a metal foil (Paragraph 58).

With respect to claims 19 and 20, Shibamoto discloses the anode active material as carbon (Paragraph 61).

With respect to claims 21-24, Shibamoto discloses the folded portion is provided on the cathode where the uncoated portions are formed on both sides (37, double sided exposed portion) of the electrode plate and the exposed portions face each other (as seen in Figure 28 above).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 6, 7, 13, 14 and 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibamoto et al. (WO 0278113, US 20040096733 is used as an English equivalent) in view of Iwasaki et al (US 6,325,611 B1).

With respect to claims 2 and 16, Shibamoto et al. discloses the electrode unit as discussed above and incorporated herein but fails to disclose an insulating tape attached to the folded portion.

Iwasaki teaches an insulating tape affixed to the electrode (16, figure 3) to prevent a short circuit from occurring (col. 13 lines 63-67, col. 14 lines 1-3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the insulating tape of Iwasaki to the folded portion of Shibamoto et al. in order to prevent a short circuit.

With respect to claims 6, 7, 13 and 14, Shibamoto discloses the electrode unit as discussed above and incorporated herein but is silent on positioning the folded portion of the second electrode plate to overlie a portion of the first electrode plate where the first electrode tab is disposed and a separator is interposed between the folded portion and the first electrode plate and an insulating tape attached to a portion of the second electrode plate corresponding to a location of the first electrode tab of the first electrode plate. Iwasaki discloses the negative lead (15) is positioned to overlie the positive current collector (1a) with a separator (3) in between them and the addition of the insulating tape (16) on the electrode (as seen in Figure 3) in order to prevent a short circuit from occurring (col. 13 lines 63-67, col. 14 lines 1-3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the insulating tape of Iwasaki to the folded portion of Shibamoto et al. in order to prevent a short circuit.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to dispose the first electrode tab on the folded uncoated portion of the first

electrode plate because the uncoated portion provides for a large surface area free from active material to which to weld the first electrode tab.

9. Claims 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibamoto et al. (WO 0278113, US 20040096733 is used as an English equivalent as applied to claims 1 and 9 above, and further in view of Fukumura et al. (US 6,027,835).

With respect to claims 8 and 15, Shibamoto discloses the electrode unit as discussed above and incorporated herein but fails to disclose the electrode having an uncoated portion of 5 to 15 mm. Fukumura discloses an electrode sheet having a current collector coated with an active material with an exposed region of 0.3 mm to 30mm in order to be manufactured at high productivity (col. 2 lines 16-20) and can be easily wound (col. 5 lines 21-22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have an exposed region of a current collector from 0.3 mm to 30 mm at the winding lead of the current collector as taught by Fukumura in the electrode as taught by Shibamoto because this would allow for the product to be manufactured at a high productivity and would allow for the electrode to be easily wound. Shibamoto as modified by Fukumura does not teach the claimed range of 5 to 15 mm. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. In re Wertheim, 541 F.2d 257, 191USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

Response to Arguments

10. Applicant's arguments, see Page 6, last paragraph and continued onto page 7, filed 10 October 2007, with respect to the rejection(s) of claim(s) 1 under 102 b have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art reference which discloses the fold to be the same width as the plate.

11. Applicant's arguments, see Page 7, paragraph 3 under the heading Rejections under 35 USC 103, filed 10 October 2007, with respect to the rejection(s) of claim(s) 9 under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art reference which discloses the fold to be the same width as the plate.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria J. Laios whose telephone number is 571-272-9808. The examiner can normally be reached on Monday - Thursday 9:30 - 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:
10/728,892
Art Unit: 1795

Page 9

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJL



SUSY TSANG-FOSTER
SUPERVISORY PATENT EXAMINER